UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

0 8 MAY 1989

Mr. Lawrence F. Hancock
Mid-Pacific Acting Regional Director
Bureau of Reclamation, Attn: MP-750
2800 Cottage Way
Sacramento, CA 98525-1898

Dear Mr. Hancock:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statements (DEISs) for **Proposed Water Contracting Programs in the Sacramento River, American River, and Delta Export Service Areas** under the authority of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. The Bureau of Reclamation (BOR) is proposing to enter into long-term contracts with agricultural interests, municipalities, industries, and wildlife refuges for the remaining unallocated yield of 1.5 million acre-feet of water per year (maf/yr) from the Central Valley Project (CVP). This letter summarizes our more detailed comments which are enclosed.

EPA staff found the meeting that you recently hosted in Sacramento extremely informative. I appreciate the effort you and your staff made to ensure that EPA's comments would be based upon a correct understanding of the complex issues surrounding CVP management.

Nevertheless, EPA continues to have grave concerns that the proposed project could adversely affect already stressed environmental resources. Also, we are concerned that the DEISs fail to fully document adverse impacts and do not describe a substantive program to avoid and/or mitigate resource losses. We believe it is premature to commit the unallocated CVP water before BOR demonstrates it can fulfill its responsibility to meet water quality standards and objectives for Central Valley regions affected by the storage, diversion, delivery, and use of CVP water.

Accordingly, we have classified the DEISs as **Category EU-3, Environmentally Unsatisfactory--Inadequate** (see enclosed "Summary of Rating Definitions and Follow-up Actions"). If the issues raised in this transmittal are not adequately resolved prior to the publication of the Final EIS (FEIS), we will consider the proposed project a potential candidate for referral to the Council on Environmental Quality (CEQ).

We have consistently urged BOR to prepare a "programmatic" DEIS to evaluate present-day environmental conditions and water allocation for the entire CVP. In our referral of the proposed renewal of Friant Unit contracts to CEQ, we urged BOR to prepare a CVP-wide programmatic DEIS to examine both contract renewals and new CVP water contracting. This programmatic document would provide a framework for analyzing how site-specific water allocations contribute to overall CVP cumulative impacts. This would help agencies identify, avoid, and offset potentially adverse impacts. Our recommendation for a programmatic EIS stands; however, for the purposes of this letter, we will confine our comments to the aforementioned DEISs.

EPA believes that these DEISs are deficient with respect to NEPA and should be formally reevaluated, rewritten, and redistributed as a single revised DEIS that includes detailed chapters on each service area. Some of the more notable NEPA deficiencies are summarized below.

ENVIRONMENTAL IMPACTS

The DEISs propose to commit the remaining unallocated CVP yield to new contracts, and to make 800,000 af/yr of firm water (a mix of "old" and "new" water) available for interim contracting during the next 20 years. In the latter proposal, interim water would be provided (at a maximum of 10 years per contract) to make intermittent allocations firm until "alternative supplies are developed" (DEIS Summary, p. 16).

The proposed increase in diversions from Central Valley rivers and the Delta would cause more frequent exceedences of State-adopted/Federally-approved water quality standards and adversely affect beneficial uses which are currently impaired. Also, the proposed interim contracting would accelerate the expected rate of environmental degradation by causing regional and cumulative impacts to occur before 2020, the year of estimated full CVP build-out.

Operation and maintenance of CVP facilities continues to influence water quality parameters (e.g. temperature, salinity, and contaminant levels) in a way that adversely affects aquatic species. Agricultural run-off and reduced flows have substantially increased contaminant concentrations and salinity levels in Central Valley refuges, and the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta). Thousands of acres of riparian/wetland habitats have been lost through reduced flows, and poisoning from contaminated water supplies.

The CVP has blocked major migration routes for anadromous fish primarily through the construction of dams and water diversion facilities. As a result wild stocks of chinook salmon and steelhead trout have been virtually eliminated, instream flows have been severely reduced in remaining habitat, and gravel recruitment necessary for spawning has been halted.

To date, BOR's efforts to offset CVP-related environmental damage have not been sufficient to fully mitigate adverse impacts on established beneficial uses such as anadromous fisheries, internationally significant Pacific Flyway waterfowl habitat, nationally recognized significant estuarine resources, and riparian systems (40 CFR 131). BOR should evaluate an alternative which allocates uncontracted CVP water to attain water quality standards, restore affected beneficial uses, and help mitigate increasingly severe adverse environmental impacts expected from the authorized CVP build-out.

INADEQUATE NEPA ANALYSIS

1. The DEISs depend upon the conjunctive use of groundwater and surface water to fulfill contract obligations and prevent groundwater overdraft, but the documents describe only a conceptual conjunctive use program. It appears that implementation of an environmentally sound conjunctive use program would require groundwater management authority that BOR lacks. The DEISs do not identify the cost nor the feasibility of implementing such a program. Without a thorough groundwater analysis, it is not clear whether a safe groundwater yield has been accurately estimated or if groundwater pumping in the Sacramento Valley would affect the amount of available surface water in the Sacramento River.

2. The DEISs did not analyze the potential effect that alternative water pricing arrangements could have on water conservation and demand. University of California studies have suggested that price can influence conservation and demand with little effect on farm profits (see enclosure).

3. The DEISs did not identify conservation plan elements, nor indicate the feasibility of implementing these plans.

4. The DEISs did not discuss whether the contract renewal process could be used to improve conservation and reallocate water to help meet changing needs.

5. The DEISs did not evaluate the extent to which each alternative would comply with State-adopted/Federally-approved water quality standards, nor did they identify operational measures needed to achieve those standards.

6. The DEISs did not disclose the cumulative impacts of other planned Federal, State, or local projects upon Central Valley environmental resources.

7. The DEISs did not thoroughly address maintenance and enhancement of long-term environmental productivity, nor did they disclose all irreversible and irretrievable commitments of resources (1502.16, NEPA Implementation Regulations).

8. The DEISs did not analyze impacts of the **Preferred Alternative** per se. Instead, impacts were assumed to be similar to the combined effect of one or more other alternatives.

9. The **No-Action Alternative** assumes full CVP build-out over the next 30-years and automatic renewal of existing contracts. This alternative is valuable for estimating "worst case" environmental conditions, but cannot serve as the "environmental baseline" against which to compare project alternatives. This depiction of "no action" understates the proposed project's incremental impacts because they are overshadowed in magnitude by the adverse impacts of full CVP build-out. Furthermore, this alternative ignores BOR's ability to diminish the possible adverse impacts of the build-out process.

10. The DEISs do not adequately: a) describe current air quality conditions, b) develop information needed to assess air quality impacts, c) adequately assess cumulative air quality impacts, d) consider Clean Air Act restrictions that may accompany new projects, and e) detail mitigation for adverse air quality impacts.

11. The DEISs fail to indicate that the proposed water marketing project may conflict with EPA's Superfund goals of controlling discharge from the Iron Mountain Mine site, achieving improved water quality in the Sacramento River, and preventing fish kills and sublethal impacts on fisheries.

12. The DEISs did not analyze reasonable alternatives outside BOR's immediate jurisdiction as required by NEPA implementation regulations [40 CFR 1502.14(c)], nor did they objectively evaluate all reasonable alternatives. For example, the DEISs did not propose alternatives that could mitigate for past CVP-related environmental impacts, and avoid and mitigate for potential impacts resulting from full build-out.

13. The DEISs did not describe substantive mitigation programs to offset environmental impacts of the proposed alternatives.

14. The DEISs did not explain whether Congressional action is needed to safeguard environmental resources in CVP service areas, or to authorize the Department of Interior (DOI) to charge contractors for mitigation costs. For example, the costs of maintaining water quality, and preventing beneficial use degradation due to reduced instream flows and contaminated return flows, represent CVP operation and maintenance costs which appear not to have been considered in DOI's rate-setting policy.

15. The DEISs do not appear to evaluate Hoopa Valley Tribe water rights in the estimate of "surplus" water, nor do they adequately discuss Federal trustee responsibilities to protect Tribal rights and fishery resources of the Trinity River.

UNRESOLVED ISSUES

1. The proposed contract articles pertaining to water shortage and apportionment may not be sufficient to correct existing exceedences of State-adopted/Federally-approved water quality standards, nor to comply with revised water quality standards and implementation measures being developed by the California State Water Resources Control Board (SWRCB) to eliminate current deficiencies in protecting Bay-Delta beneficial uses.

2. The proposed project does not resolve any of the issues which led to the original 1978 Andrus Decision that imposed a moratorium on CVP contracting. The proposed project still lacks fundamental protection of instream flow levels, areas of origin needs, and habitat requirements for Central Valley migratory birds.

3. The proposed project would not provide any new firm water supplies to refuges. Public Law 99-546, authorizing the 1986 Coordinated Operation Agreement (COA), requires that 25 percent of the uncommitted CVP firm yield be reserved from long-term contracting until one-year after the Interior Secretary submits to Congress a report on refuge water supply (ARSA DEIS, p. 2-3). In March 1989, BOR released the first installment of this report, Report on Water Supply Investigations; however, the follow-up planning report is not expected until November 1989.

   The DEISs, however, contemplate alternatives that do not reserve this uncommitted firm yield, and do not appear to incorporate the information in the first installment of the refuge water supply report. In fact, only about 40,000 acre-feet of the proposed 1.5 maf allocation would be allocated as firm yield to refuges (Table S-3). This proposed

refuge allocation nearly equals the amount of firm yield allocated (but never delivered) to refuges in 1954 by CVP reauthorization.

4. The proposed project appears to cause further decline of the nation's wetlands base - a direct inconsistency with the recommendations of the National Wetlands Policy Forum, and the objectives of various executive and legislative mandates (see enclosure). Also, in President Bush's Budget Message on the Environment, he restated the goal of achieving no overall net loss of the nation's remaining wetland base.

5. BOR cannot accurately identify "surplus" yield without findings from the U.S. Fish and Wildlife Service's (FWS) 12-year Trinity River Flow Study. The Secretary of Interior mandated the study to identify a long-term flow regime sufficient to maintain the river's anadromous fishery. This study is not yet complete.

We appreciate the opportunity to review these DEISs. We hope that you will decide to revise these DEISs as a programmatic DEIS for the CVP. Please send five copies of the revised DEIS to this office when you submit the document to EPA Headquarters. If you have any concerns or questions, please call me at (FTS) 454-8153, or have your staff contact Jacqueline Wyland at (FTS) 454-8292 or Tim Vendlinski at (FTS) 454-8187.

Sincerely,

Daniel W. McGovern
Regional Administrator

Enclosure: (28 pages)

cc: BOR, Commissioner C. Dale Duvall
DOI, Environmental Coordinator Patricia Port
NMFS, Regional Director E.C. Fullerton
FWS, Regional Director Marvin Plenert
CEQ, Chairman Alan Hill
ARB, Executive Director Jim Boyd
DFG, Director Peter Bontadelli
DWR, Director David Kennedy
RWQCB (5), Executive Officer William Crooks
RWQCB (2), Executive Officer Steven Ritchie
SWRCB, Chairman Donald Maughan
EPA Headquarters: OA, OFA, OGC, OWP

SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP ACTION*

Environmental Impact of the Action

LO—Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC—Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO—Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU—Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1—Adequate
EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2—Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3—Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

EPA's PROPOSED ALTERNATIVE

BOR should prepare a "programmatic" EIS covering overall CVP operations. This EIS should assess current environmental conditions, and evaluate whether beneficial uses could be protected, and water needs met, using water from both new water contracting and from potential reallocations made during contract renewals.

Also, this EIS should analyze and disclose the cumulative environmental impacts arising from the relationship of BOR's proposed project with other current and "reasonably foreseeable future actions" proposed by Federal, State, and local government entities (40 CFR 1508.7). The document must disclose how potential adverse impacts could be avoided or minimized, and how unavoidable impacts could be mitigated (40 CFR 1508.20, 1502.14).

Under NEPA, all feasible alternatives must be evaluated (40 CFR 1502.14). We urge BOR to evaluate an alternative that allocates only water that is actually available after avoiding, minimizing, and correcting adverse impacts. This alternative should ensure compliance with water quality standards and objectives including protection of beneficial uses.

In addition to a CVP-wide programmatic EIS, EPA believes that site-specific EISs should be prepared for each of the service areas. These site-specific EISs should evaluate alternatives that combine avoidance of adverse impacts with mitigation for existing CVP impacts, impacts resulting from full CVP build-out, and impacts from proposed new contracts. This alternative should be dedicated to meeting requirements for water quality, in-stream flow and optimal refuge maintenance (firm yield, Level 4) at levels recommended by the California Department of Fish and Game (DFG) and the U.S. Fish and Wildlife Service (FWS).

The CVP should be operated so that the combination of existing and proposed CVP activities will not contribute to exceeding or violating any State-adopted/Federally-approved water quality standards. Once the water required for protection of beneficial uses and as mitigation for CVP-related environmental damage has been set aside, BOR could consider allocating the remaining water to meet agricultural, municipal, and industrial demand. However, the proposed project should not provide water to irrigators whose need calculations were based on lands that they wish to convert from dry farming, wetlands, or natural terrestrial habitats into irrigated agricultural lands.

INADEQUATE NEPA ANALYSIS

Groundwater Management

1. The DEISs do not provide a groundwater analysis demonstrating the availability of a safe groundwater yield, nor do they explain how a conjunctive use program could be feasibly implemented without groundwater management. Also, the DEISs note that groundwater development would be required only when its overall costs are equal to or less than the cost of surface water rates (per CVP rate setting policy); but because surface water prices are kept artificially low for agriculture, groundwater development would generally be more costly. The revised DEISs should:

   a. Prepare a groundwater analysis that identifies which Central Valley groundwater aquifers are affected by overdraft. Also, describe the relationship between Sacramento Valley aquifers and groundwater recharge into Sacramento River surface waters.

   b. Explain what authority BOR has, and whether it is feasible, to use groundwater to replace surface water deliveries via conjunctive use.

   c. Discuss how BOR will ensure that the projected benefits from conjunctive use and reduced groundwater overdraft will actually occur in the face of countering forces such as short-term economic considerations.

   d. Assess the impacts of increased pumping of overdrafted groundwater basins within and adjacent to the service areas, and explain if groundwater extraction will preclude the DEIS's expected benefits and/or result in alterations of basin hydrologic balances.

   e. Develop enforceable measures to ensure that the proposed project does not promote net overdraft conditions for groundwater.

Pricing and Contracting Policies

1. EPA believes that BOR pricing policies do not reflect the true economic and environmental costs of building and operating the CVP at the expense of water quality, wetlands, and fisheries.

BOR staff has indicated their belief that rate setting policies are beyond the scope of the DEISs. However, due to the importance of price relative to demand and conservation, it is reasonable for the revised DEIS to evaluate the different environmental impacts predicted from alternative water costs for agricultural, municipal, and industrial contracts. The revised DEIS should:

a. Estimate the actual cost of Federal water proposed for marketing, including monetized estimates of negative externalities (e.g. destruction of self-sustaining anadromous fisheries), and estimate the full costs of water treatment required to offset adverse drainage impacts.

b. Analyze whether Federal subsidies for water and crops affect water demand.

c. Explain whether demand would be influenced by alternative pricing schemes.

Economists at the University of California (U.C.) developed a computer model to evaluate "tiered pricing" as a method to reduce drainage water. For specific crops, tiered pricing would increase prices for the amount of water sold in excess of that deemed necessary by experts. Because tiered pricing creates a strong incentive to conserve water, it has little influence on farm profits ("Opportunities for Drainage Water Reduction", a publication of the Salinity Drainage Task Force and the water Resources Center of the University of California, January 1988).

Another study by U.C. and the U.S. Department of Agriculture estimated that a price increase in the Westlands Irrigation District (San Luis Unit) from $15.80/acre-foot to $25.00/acre-foot, could significantly (34%) decrease water use by a shift in cropping patterns and increased water use efficiencies (Moore, et. al, "Structure and Performance of Western Irrigated Agriculture," Giannini Foundation Bulletin 1905, University of California, 1982).

d. Examine whether a gradual shift away from water-intensive crops toward water efficient crops could result in substantial savings of CVP water. Discuss whether such a gradual shift could be promoted by water conservation contract conditions or tiered pricing.

Conservation Plans

1. Conservation remains a promising source of "new" water for California's consumptive and non-consumptive applications. The revised DEIS should:

   a. Evaluate (qualitatively and quantitatively) the performance of existing water conservation plans and recommend appropriate conservation practices for contract conditions.

   b. Analyze potential contract provisions to reduce evaporation and the creation of contaminated drainage water. Discuss feasible measures to mitigate for water quality degradation resulting from return flows.

   c. Describe the requirements that must be met in preparing conservation plans, and detail any performance standards specified for their implementation. Disclose the effectiveness of these plans and explain how BOR intends to use them to ensure that the projected environmental benefits of conservation (i.e., improved irrigation management) actually materialize.

2. We understand that new, amended, and renewed contracts would have a requirement for conservation plans comprised of economically feasible conservation measures. The DEISs assume that water users will adopt these measures. If economic feasibility is calculated based on comparisons with low CVP water prices, few conservation measures would appear feasible. The revised DEIS should:

   a. Explain how the economic feasibility of these measures would be determined, and whether feasibility would be calculated using full-cost CVP water rates.

   b. Evaluate the economic feasibility of conservation measures using the price that CVP water would command on the open market.

Contract Renewals

1. The DEISs did not discuss whether the contract renewal process could be used to reallocate water to help meet changing needs. The revised DEIS should:

a. Conduct a comprehensive evaluation of water uses to determine whether some historical water use patterns are no longer beneficial with regard to competing demands for limited water supplies. Describe how water conservation and reallocation could be accomplished via contract renewals.

b. Evaluate contract terms and conditions designed to conserve water for other demands and to reduce environmental impacts.

Cumulative Impacts

1. The DEISs do not adequately isolate or quantify existing CVP impacts, analyze accelerated impacts of the 2020 build-out, or evaluate the incremental impacts of the proposed water contracting program. Also, the DEISs do not adequately assess how the proposed project may interact with existing and "reasonably foreseeable" Federal, State, and local projects to cumulatively impact Central Valley environmental resources (40 CFR 1508.7).

   a. BOR should prepare a revised NEPA document that integrates the three service areas into a single DEIS, and portrays how the proposed project interacts with the California State Water Project (SWP), Central Valley Project (CVP) operations (including contract renewals), and other "reasonably foreseeable" State, Federal, or local water projects to cumulatively affect the quality of air, water, wetlands, and fisheries within the Central Valley.

   b. BOR should utilize all the new technical information and policy recommendations made available during this public comment period to prepare a revised DEIS for full public review.

2. Points of diversion for American River water are currently being litigated. Also, various Federal, State, and local agencies are developing flow standards necessary to rehabilitate the Trinity River in accordance with the Trinity River Basin Comprehensive Action Program.

a. The revised DEIS should discuss whether a point of diversion decision involving the American River would affect the environment, explain whether the proposed project would affect this decision or amplify its environmental impacts, and explain how the proposed project would ensure that the instream needs for the Trinity River are satisfied.

3. In April 1989, BOR informed EPA that increased use of SWP facilities is essential to CVP build-out. Some proposed alternatives are dependent upon expanding operations of the SWP's Banks Pumping Plant; however, pumping is now constrained by the Department of Water Resources (DWR) and the Corps of Engineers (COE).

BOR's proposed operating modifications, boosting pumping rates beyond maximum levels established before the installation of four new pumps, could affect Delta navigability and trigger the need for a Section 10 permit under the Rivers and Harbor Act of 1899. Also, the operational changes would almost certainly constitute a major Federal action significantly affecting the quality of the human environment and therefore require NEPA analysis [Section 102(2)(C)]. The revised DEIS should:

a. Describe the nature of the proposed changes to the operations of the Banks plant and the environmental impacts of those changes.

b. Explain whether this change would require a Section 10 permit and whether BOR would apply for it.

c. Explain whether BOR will prepare an EIS that evaluates statewide impacts of potentially increased pumping at the Bank's facility, and analyzes cumulative environmental impacts of SWP and CVP operations.

d. Explain whether the SWP currently obtains part of the CVP's unallocated yield for resale to State water contractors. If so, the revised documents should discuss how the proposed project would affect this arrangement and the environmental consequences of any proposed changes.

No-Action Baseline

1. Instead of measuring potential impacts against current conditions, the DEISs measure the project's potential incremental impacts against the severe and unmitigated environmental degradation resulting from full CVP build-out. Also, the documents presume that existing contractors, yet to receive their full allocations, would receive their entire deliveries under full CVP build-out (thus treating these future diversions as baseline conditions). This overall approach to expressing baseline conditions understates the proposed project's impacts. The revised DEIS should:

   a. Measure project impacts using a baseline that reflects present-day environmental conditions, as well as "future without project" conditions.

   b. Evaluate present-day conditions, differentiate impacts from the proposed project and 2020 build-out, and then consider these impacts cumulatively.

Model Inaccuracies

1. The DEISs did not analyze impacts of the **Preferred Alternative** per se. Instead, impacts were assumed to be similar to the combined effect of one or more other alternatives. The revised DEIS should:

   a. Analyze the **Preferred Alternative** and measure its potential cumulative impacts against a baseline that reflects current, and "future without the project", conditions.

2. Alternatives beside the **Preferred Alternative** were analyzed using an operations model that apparently miscalculated available yield by approximately 300,000 acre-feet. The revised DEIS should:

   a. Significantly reduce the model's margin of error.

   b. Determine how much water would be needed to meet Ambient Water Quality Standards (including protection of beneficial uses).

   c. Estimate the amount of water that would be available afterward for new contracts.

Mitigation

1. While each proposed alternative contains some mitigation elements, the DEISs do not demonstrate that any of the alternatives contain mitigation elements to fully offset their own adverse impacts. The proposed mitigation measures are inadequate relative to the potential magnitude of adverse effects that they are designed to offset. The revised DEISs should:

   a. Specify measures to avoid causing adverse impacts to fish and wildlife habitat, and explain how potentially unavoidable fish and wildlife impacts would be reduced to less-than-significant levels.

   b. Describe how the proposed project could mitigate for degradation resulting from its own implementation, including accelerated degradation that would ensue from proposed interim contracting. We encourage BOR to propose mitigation, whether or not required by law, that would offset degradation due to the CVP's past construction, operation, and maintenance; and future degradation expected from full CVP build-out.

   c. Detail mitigation measures and rigorously evaluate their effectiveness to determine whether any of the proposed alternatives are adequate.

Global Warming

In July 1988, EPA issued a document entitled Greenhouse Effect, Sea Level Rise, and Coastal Wetlands. Also, in October 1988, EPA prepared a draft Report to Congress entitled Potential Effects of Global Climate Change on the United States. The latter explains that a 1 - 2^{o} C increase in temperature would result in greater rainfall during winter months at the expense of snow pack development in the mountains surrounding the Central Valley. Reservoirs may not be able to both handle the increase in early winter run-off and still provide flood protection. Much of this early winter run-off may have to be released and may not be available for summer deliveries.

Other potential effects of global warming may include an increased occurrence of California's droughts, rising sea levels (five to fifteen inches by 2025), loss of coastal wetlands, increased aquatic temperatures, loss of terrestrial vegetation, and accelerated erosion.

1. Climate change may reduce the performance of the CVP and SWP water management systems that were designed based on historical climate and hydrologic conditions. Global warming may significantly affect the ability of State and Federal agencies to fulfill long-term water contracts, control floods, dilute pollutants, comply with water quality standards, and protect beneficial uses. Consumers may demand more surface and ground water, and thereby exacerbate impacts to fish and wildlife.

   As the implementation of the proposed project would occur during the same 40-year period when impacts associated with global temperature changes are expected to occur, the revised DEIS should:

   a. Detail the proposed project's potential to exacerbate conditions related to global warming, e.g. prolonged drought, decreased riverine and estuarine flows, loss of wetland/riparian habitats, soil erosion, conversion of forests to crops, and changes in farming patterns.

   b. Estimate emissions of "greenhouse" gases (such as CO_2, methane, N_2O, and CFCs) due to potential increases in agricultural activity and urbanization resulting from the proposed project and discuss their effects. Explain that global warming is expected to substantially increase ground-level ozone concentrations (see EPA's draft report to Congress, October 1988).

   c. Discuss structural and non-structural means to improve the CVP's efficiency and flexibility in dealing with climate changes.

WATER QUALITY

CVP operations have led to severe water quality problems. These include the introduction of contaminants into riverine, estuarine, and wetland ecosystems, as well as the creation of adverse temperature, salinity, and stream-flow conditions. The combined effect of these changes has contributed to the degradation of waters of the United States, including impairment of beneficial uses such as fish and wildlife habitat.

Water Quality Standards

1. The Clean Water Act (CWA) mandates that Federal agencies "...having jurisdiction over any property or facility...shall be subject to, and comply with, all...State...requirements, administrative authority, and process and sanctions respecting the control and abatement of water pollution in the same manner, and to the same extent as any nongovernmental entity..." (CWA, Section 313). Also, they must comply if they engage in activities resulting in the discharge of pollutants.

   California Regional Water Quality Control Boards (Regional Board) and the State Water Resources Control Board (SWRCB) have adopted EPA-approved water quality standards for the four regions affected by the proposed project (regions 1, 2, 3, and 5). These standards must contain beneficial use designations, narrative and/or numeric water quality criteria, and antidegradation provisions for all water segments (40 CFR 131). Therefore, in evaluating the impacts of the proposed alternatives, it is not sufficient to merely determine their consistency with the D-1485 salinity standards referenced in the Coordinated Operating Agreement (COA) and D-1422.

   Based on the information provided in the DEISs, each proposed alternative would contribute to water quality standards violations via increased diversions and reduced Delta outflow, and appears to adversely impact fisheries, a primary beneficial use of each Basin Plan. The standards and beneficial uses established for each water segment must be fully protected and maintained. The revised DEIS should:

   a. Evaluate the ability of each alternative to comply with all Regional, State, and Federal water quality standards for all surface waters affected by the proposed project. Determine whether the alternatives are consistent with narrative and numeric water quality criteria, beneficial use designations, and antidegradation provisions.

   b. Discuss environmental impacts related to operating reservoirs closer to capacity, increasing drawdown, eliminating the environmental buffer provided by reservoirs, and reducing the amount of water available for beneficial uses (such as fisheries and recreation). Explain how these actions would influence compliance with water quality standards.

c. With respect to the American River Service Area, describe how BOR's proposed non-compliance with flow requirements adopted in D-1400 will affect protection of these beneficial uses (DEIS, ARSA 4C-).

Antidegradation

1. In 1968, the Secretary of Interior established the Federal antidegradation policy; the policy was incorporated into the water quality standards regulations issued by EPA (40 CFR 131.12). EPA's antidegradation policy, reinforced by the 1987 Water Quality Act, requires that once designated uses of a water segment have been achieved, the uses must be maintained and fully protected. The revised DEIS should:

   a. Disclose whether each alternative is consistent with the antidegradation policy established by the State and approved by EPA as a provision of the State's water quality standards. For example, with respect to agricultural drainage, evaluate whether discharges resulting from increased CVP deliveries could increase concentrations of constituents, such as TDS, B, Se, in waters of the United States.

Proposed Standards

1. BOR has not convincingly demonstrated the existence of water in excess of that required to meet current or proposed water quality standards. It is not appropriate for BOR to make long-term contract commitments in advance of the following activities:

   a. SWRCB must adopt amendments to the Bay-Delta water quality standards (such as the Pollutant Policy Document).

   b. SWRCB must adopt a plan to control salinity and temperature levels in a way that eliminates deficiencies of the current Water Quality Control Plan for the Sacramento/San Joaquin Delta and Suisun Marsh (Delta Plan, 1978). EPA approved the Delta Plan except for striped bass survival standards and the relaxation provision of the striped bass spawning standard. The decline of the striped bass index is one indication that the existing plan must be strengthened to protect water quality in the Bay-Delta (see "Racanelli Decision").

c. SWRCB and EPA must ensure that a plan sufficient to carry out the aforementioned water quality standards is developed and implemented per the Porter-Cologne Act and the Clean Water Act (CWA). For example, where ambient water quality exceeds water quality standards, Total Maximum Daily Load/Wasteload Allocation analysis and documentation must be completed pursuant to CWA [Section 303(d)].

Agricultural Drainage

1. The DEISs assert that "Compared to the no-action 2020 baseline conditions, all water contracting alternatives would either improve or not significantly impact Delta Service Area drainage conditions" (p. 22, Executive Summary). This assertion appears to be based on the assumption that new CVP water would replace groundwater currently being used, and that agricultural return flows "would stabilize at approximately 15% of total applied water" (p. 4C-1). A parallel assumption is made for refuge return flows.

   Since BOR proposes to increase the water volume for irrigation, agricultural drainage may increase commensurately at some locations. We are concerned because agricultural drainage water may discharge pesticides, metals, and nutrients into aquatic systems and degrade their water quality. Agricultural drainage waters can be extremely harmful to fish and wildlife as demonstrated by the selenium poisoning of the Kesterson Wildlife Refuge.

   San Joaquin River Basin Example

   The San Joaquin River and its tributaries are severely impacted due to irrigation return flows/drainage. Total Dissolved Solids (TDS), Boron (B), and Selenium (Se) are the most notably affected parameters; other parameters of concern include Al, As, Ba, Be, Bi, Cd, Cr, Cu, F, Fe, Pb, Li, Mg, Mn, Hg, Mo, Ni, N, P, Ag, Sr, V, U, and Zn (Water Quality Constituents of Concern In Subsurface Agricultural Drainage; SWRCB Order WQ 85-1, Technical Committee Report).

   Several water quality parameters already exceed national water quality criteria and State-adopted/Federally-approved water quality standards, e.g. the area is infamous for its high Se levels. The DEISs do not include mitigation measures for current Se problems, nor do they contain mitigation necessary to offset aggravated Se conditions expected under the **No-Action Alternative's** full CVP build-out.

The revised DEIS should:

a. Discuss past and ongoing CVP-related drainage impacts on surface and ground water quality, fish and wildlife, and soil conditions.

b. Estimate the volume and quality of drainage resulting from project build-out. Superimpose estimates of drainage from the proposed project and explain how these estimates were calculated.

c. Estimate the pollutant loading from the increased drainage due to project build-out; explain whether this increase will be offset by the proposed alternatives; and describe potential impacts on water quality standards, fisheries, wetlands, and wildlife.

d. Develop a substantive plan to manage increased CVP irrigation drainage created by project build-out and the proposed project.

e. Address the impacts of increased demand for clean, rather than return flow, water for refuges.

San Francisco Estuary Project

1. EPA's Administrator has designated the San Francisco Bay/Sacramento-San Joaquin Delta as a component of the National Estuary System. This designation recognizes the ecosystem's tremendous environmental and economic value, and represents EPA's commitment to identify and resolve resource conflicts that threaten its well-being. The San Francisco Estuary Project is developing a Comprehensive Conservation and Management Plan for the restoration and maintenance of the chemical, physical, and biological integrity of the Bay-Delta.

   Unfortunately, water diversions have reduced freshwater flows into the Bay-Delta system by 40-50 percent of historical levels. Low flows have intensified both point and nonpoint source pollutants, and exacerbated salinity intrusion into the Bay-Delta; wetlands and other critical habitat areas have been severely disrupted.

   a. We urge BOR to avoid selecting any project alternative that would further reduce freshwater flows into the Bay-Delta or further degrade water quality.

FISHERIES

The CVP has caused severe detrimental impacts on California's fisheries. Construction and operation of water storage and delivery facilities has contributed to the loss of over 90% of the historical spawning habitat of anadromous fishes (DFG's California Fish and Wildlife Plan, 1965). Flow alterations have significantly reduced the success of salmon spawning below the storage facilities. In addition, the direct losses of fish eggs, and larvae, and juvenile fish from CVP pumping and diversion facilities continue to have adverse impacts on fishery resources (DFG Bay-Delta quarterly report; FWS model that links aforementioned losses with reduced rates of anadromous fish survival in the Delta).

The following are two examples where aquatic habitat uses have not been fully protected pursuant to State-adopted/Federally-approved water quality standards:

American River Example

The CVP has damaged many miles of spawning habitat in the American River watershed. All proposed alternatives, especially the **No Action Alternative**, would have serious adverse impacts on riparian habitat, wildlife, lake fisheries, and recreation within and downstream from Folsom Reservoir (Executive Summary, p. 18-20). Most of the alternatives, including the **No-action Alternative**, would have negative impacts downstream.

All the proposed alternatives would reduce the CVP's ability to protect fish, wildlife, and recreational uses designated in water quality standards as implemented through D-1400 especially in dry years, but also in below average, above average, and even some wet years (DEIS, ARSA, figure 4C-1). The D-893 requirements that BOR uses to claim compliance with current State requirements are obsolete, and have been replaced as a basis for judging compliance with current environmental regulations (see D-1400 and clarifying orders).

Upper Sacramento River Example

Both the fall- and winter-run chinook salmon have suffered severely from CVP operations; declines in salmon populations have been well documented (FWS Exhibits, SWRCB Bay-Delta Hearings, 1987). Mitigation for reduced access to natural spawning areas (e.g. hatcheries) have not fully mitigated the impacts of physical stream blockage. Elevated temperatures in remaining spawning areas below dams regularly exceed existing water quality standards and make those areas unsuitable for the designated beneficial uses, especially in years of below normal flow.

Currently, the beneficial uses of cold water aquatic life are severely degraded. It appears that BOR's proposed alternative would exacerbate this problem and would violate all three major parts of water quality standards: 1) eliminate or severely reduce a designated beneficial use; 2) violate the antidegradation provisions; and 3) increase the frequency of exceedences of numeric temperature and toxics standards in the Sacramento River.

1. With regard to winter-run chinook salmon, the National Marine Fisheries Service (NMFS) and DFG have stated that Sacramento River's present temperature regimes are unacceptable and, in many years, are lethal due to the severity and frequency of drawdown of Lake Shasta.

The problem has become so serious that Federal and State resource agencies have been petitioned separately to list the winter-run chinook salmon as "threatened" pursuant to the Federal and State Endangered Species Acts. If this species or its habitat become so depleted that listing becomes necessary to protect the species from extinction, there could be drastic economic disruptions of mixed-stock ocean fisheries and fishing communities. Under the proposed alternatives, the frequency, magnitude, and duration of drawdowns would increase, as would temperatures in the Sacramento River; this could have further adverse impacts on winter run chinook salmon.

The DEISs' monthly temperature model is not adequate to estimate fishery impacts, given that mortality can result from short-term exposure to elevated temperatures. Also, Tables J through L show that proposed alternatives could adversely impact spawning and rearing temperatures for chinook salmon (SRSA, pp. V-11 thru 13). The revised DEIS should:

a. Detail the proposed project's impacts on the winter run chinook salmon, and discuss existing and potential CVP-impacts on the four races of chinook salmon.

b. Utilize a daily temperature model to assess potential fishery impacts; the model could focus on dry years to eliminate the necessity of performing all possible variations. If this is not possible, the revised DEIS should at least provide statistical probabilities of potential maximum temperatures, their frequency, and their duration.

   If a monthly mean temperature is the only available estimate, the revised DEIS should indicate the confidence interval around the monthly mean and should report the absolute maximum and minimum value within the month. This probability analysis should evaluate how frequently the maximum could occur and determine the maximum duration, and evaluate the potential impacts of this "worst case" on downstream fisheries.

c. Provide alternatives that reduce demand for CVP water and guarantee firm, high quality supplies to protect both instream beneficial uses and fish and wildlife resources.

2. The only fishery resources addressed in the SRSA and ARSA were chinook salmon, american shad, sunfish, and steelhead trout. The revised DEIS should:

   a. Discuss which of the 40+ game and non-game species require individual treatment versus a "community impact" analysis. Analyze the potential site-specific impacts of the various alternatives on these species, quantify the number of fish potentially impacted, and estimate the percentage decline of various indicator species.

   b. Provide a detailed analysis of the potential impacts of increased diversions and agricultural drainage on Sacramento River temperatures and fisheries, especially outmigrant survival.

   c. Analyze alternative points of diversion that would minimize impacts to fisheries.

3. The DEISs do not specifically describe measures to offset adverse impacts on anadromous fisheries as project features or mitigation commitments. Thus, we are concerned that these measures may be forgone when water demand outstrips available supply. The revised DEIS should:

   a. Formally incorporate such measures into the revised DEIS to ensure that, at least, existing fisheries are protected.

Significant Impact Levels

1. The analysis of fisheries impacts arbitrarily assigns a 10 percent change from **No-Action Alternative** conditions as the measure of the significance of impacts. It is not clear how accurately this 10 percent change in environmental conditions can be measured. However, because many fish stocks are already severely stressed, even a change falling below the 10 percent measurement level may represent irreversible resource damage. The revised DEIS should:

   a. Explain the quantitative analysis employed to estimate changes in baseline parameters. Report the error and statistical significance of the model's values.

   b. Fully justify all criteria used to define the biological or ecological "significance" of impacts (as contrasted with statistical significance of model values) and assess how potential incremental changes in habitat parameters would cause cumulative fisheries impacts.

Hoopa Valley Indian Tribe and Trinity River Fisheries

1. The CVP diverts over 1 million af/yr of Trinity River water to Central Valley consumers. Since 1963, when the Trinity River Division began operating, chinook salmon runs have declined 80 percent and steelhead trout 60 percent (DOI FEIS entitled Management of River Flows to Mitigate the Loss of the Anadromous Fishery of the Trinity River, California, 1980). The FEIS determined that insufficient streamflow was the major cause of this drastic decline. Also, the FEIS stated that restoration of fishery stocks to pre-project levels is mandated by language contained in the Congressional authorization for the Trinity River Division, and by the responsibility of the Federal government to protect Hoopa Valley Indian fishing rights.

The Hoopa Valley Tribe has appealed the Secretary of Interior's policy of reducing Trinity River flows in dry and critically dry years to 220,000 and 140,000 acre feet, respectively. The Tribe contends that this operational decision by BOR has resulted in frequent Trinity River flow reductions when the rest of the northern CVP has not suffered reduced water supplies. These flow reductions adversely affect the fishery and are opposed by the Technical Committee of the Trinity River Task Force established to coordinate the $52 million Trinity River habitat restoration program. The revised DEIS should:

a. Postpone identifying surplus yield until FWS completes the Trinity River flow study, or set aside from contracting a flow volume sufficient to meet any foreseeable flow needs. (This flow could exceed the current allocation of 340,000 acre feet a year in wet years.)

b. Discuss how the proposed contracting alternatives would influence the Congressionally authorized Trinity River habitat restoration program.

c. Discuss the federal trust responsibility to the Hoopa Valley Tribe and their appeal regarding dry year flows. Discuss how the proposed contracting alternatives would affect Hoopa Valley Tribal fisheries.

WETLANDS AND RIPARIAN HABITAT

The CVP's diversion and storage of water has directly and indirectly caused significant losses of wetland and riparian habitat, and has contributed to the drastic decline of migratory bird populations dependent upon the Pacific Flyway. It is estimated that only 7.5 percent of Central Valley wetlands remain, and only 2.5 percent of the original wetlands acreage is protected by State or Federal refuges. Wetlands have been lost primarily through conversion for agricultural and urban expansion ("Report on Refuge Water Supply Investigations, Central Valley Hydrologic Basin, CA", BOR, March 1989).

The proposed project appears to conflict with objectives of executive mandates to protect and enhance the Nation's wetlands. The President has issued orders directing Federal agencies to avoid long- and short-term adverse impacts associated with destroying or modifying wetlands, and occupying and modifying floodplains (Executive Order 11990 [Protection of Wetlands] and Executive Order 11988 [Floodplain Management]).

Furthermore, the proposed project seems to conflict with the objectives of legislative mandates regarding wetlands stewardship. Congress has indicated that protecting and restoring wetland and riparian resources are national priorities [Food Security Act of 1985 ("Swampbuster" provisions), Emergency Wetlands Resources Act of 1986, and Clean Water Act of 1987].

1. The DEISs do not adequately discuss the proposed project's potential to accelerate conversion of wetlands (possibly thousands of acres) into agricultural and urban properties. Based on information in the DEISs, it is difficult to determine the location, quality, and quantity of potentially affected wetlands, and the magnitude of potential damage to wetland-dependent species and other functional values. Also, the DEISs do not identify potential cumulative impacts on wetlands resulting from the implementation of future actions related to the proposed project, nor are substantive measures proposed to avoid and mitigate for these potential wetland losses (p. 5-50, ARSA).

   NEPA requires BOR to discuss within the DEISs the means to mitigate adverse environmental impacts [40 CFR 1502(f), 1502.16 (h)]. "Mitigation" is defined as a) avoiding the impact altogether by not taking an action or parts of an action; b) minimizing impacts by limiting the degree or magnitude of the action or its implementation; c) restoring the affected environment; d) preserving and maintaining the environment; and e) compensating for impacts by replacing the environment or resources [1508.20 (a) through (e)]. The revised DEIS should:

   a. Assess potential adverse cumulative impacts on wetlands from both the proposed project and "reasonably foreseeable future actions" (40 CFR 1508.7).

   b. Describe a monitoring program that could be developed to quantify actual degradation and loss of wetlands. Specify available techniques to avoid and mitigate for wetland losses, and explain how such techniques could be implemented. Describe the mechanism the BOR could implement to ensure no net loss of wetlands (as defined by acreage and value function), and outline performance standards that could be employed to measure progress of the mitigation program.

c. Disclose the specific location, quantity, and quality of potentially affected wetlands, and describe the methods used to delineate these areas. National Wetland Inventory Maps could be used to identify areas and acreages of potentially affected wetlands per CVP service areas. These maps do not identify Federal jurisdiction for the purposes of CWA.

2. The DEISs provide only a qualitative impact analysis for riparian/wetland habitat. The methodology used to evaluate impacts of the various alternatives on riparian wetlands is limited by its use of mean monthly flow estimates (see discussion on page 4H-5 of SRSA).

a. The revised DEIS should include a quantitative model to evaluate potential impacts on riparian wetlands. The model should consider the complex relationship of flows and sediments to the integrity of riparian communities.

3. The SRSA DEIS does not disclose the impacts of various alternatives on ARSA and DESA wetlands, and concludes that the regional impacts of **Alternative 1** on riparian habitat are not significant (p. 5-31, p. 4H-10, SRSA). However, the discussion of site-specific impacts concludes that riparian impacts would be significant (page 4H-11, SRSA). Tables P and V in Appendix VI (SRSA) also show that the various alternatives would have significant wetland impacts. For each service area, the revised DEIS should:

a. Clarify inconsistencies in estimating changes in the quality and quantity of the nation's remaining wetland base.

b. Compare the relative affect on fish and wildlife resources between supplying refuges with Level 2, and Level 4 allocations. Detail the difference between using intermittent versus firm flows to maintain these Levels.

4. In January 1989, EPA adopted the goals of the National Wetlands Policy Forum to achieve no overall net loss of the nation's remaining wetland base (defined by acreage and function), increase wetland quality and quantity, and restore and create wetlands. The President has directed the preparation of a new executive order on wetlands protection.

a. The revised DEIS should anticipate that the new order may incorporate the goals of the Forum, and respond with a revised DEIS that avoids any additional wetland losses, and allocates sufficient water to restore and replace wetlands degraded or destroyed by the CVP.

AIR QUALITY

BOR is proposing to allocate and distribute additional water to areas that are seriously affected by air pollutants such as ozone, carbon monoxide, and particulates. These pollutants have serious adverse effects on both human health and on plants, including agricultural crop damage valued at approximately $150 million - $1 billion annually (see "How Air Pollution Damages Health" and "The Effects of Smog on California Plants", California Air Resources Board, 1983 and 1985, respectively).

The proposed project could exacerbate air quality degradation by encouraging agricultural activities (pesticide application, and particulate generation from land tillage and waste burning), and urban development (vehicle emissions and commercial activity).

Because the **No Action Alternative** does not reveal the magnitude of potential project impacts, it is not possible to accurately estimate the real potential increase in urbanization and agricultural activity. Moreover, the DEISs fail to "assure" conformity with the State Implementation Plans (SIP) as required by the Clean Air Act (CAA). Also, the documents do not explain that the primary reason to protect air quality is to avoid human morbidity and mortality.

1. We recommend that the revised DEIS address existing air pollution conditions and planning issues in the following manner:

   a. Identify current violations of state and federal standards in the Sacramento area, the San Joaquin Valley, the Bay Area, and the Monterey Bay Area. Contrary to statements in the DEISs, most of these areas failed to meet Federal standards by 1987 - thus violating statutory requirements.

   b. Discuss the specific health threats and effects posed by high ozone levels, carbon monoxide, and particulates (PM10) that currently violate standards intended to protect people from increased sickness and premature death.

c. Assess the potential crop damage resulting from existing elevated air pollution levels.

d. Discuss the requirements of Federal and State Clean Air Acts designed to reduce emissions; and the measures being considered by local, regional, and State agencies to remedy the problems. Local air quality agencies can assist BOR with this information.

2. BOR has not described a reliable means to prevent agricultural expansion resulting from the proposed project. Agricultural expansion could degrade air quality via increased tillage, waste burning, and pesticide application; and increase levels of particulates and ozone. The revised DEIS should:

a. Estimate the maximum potential change in agricultural acreage and and crop patterns, and describe the resulting air emissions.

b. Describe potential increases in pesticide application and related ozone impacts. Pesticides are a major source of ozone precursors, especially in the San Joaquin Valley.

c. Discuss potential increases in particulate emissions resulting from the disturbance and abandonment of marginal lands that may be brought into production by the proposed project.

3. The DEISs indicate a minimum of urban development is expected due to the proposed project since most of the areas have alternative sources of water available (Delta, 4L-1).

a. Identify those areas that would be able to obtain adequate water supplies during project implementation without the renewal of existing Federal or State water contracts. Indicate how much additional development would be possible in areas that do not have such reliable water supplies. Once these issues are clarified, the revised DEIS should evaluate potential emissions of hydrocarbons, nitrogen oxides, carbon monoxide, and particulates. Describe the impact of these emissions on attainment of State and Federal standards and discuss the impacts on human health and crops.

4. The Clean Air Act (42 U. S. C. 7506(c)) prohibits any Federal agency from taking any action that does not conform with SIPs, and requires each agency to abide by this requirement. The DEISs contain various erroneous statements regarding conformity (Delta, 4L-1; American, 4M-7; Sacramento, 4M-6). In fact, EPA has issued conformity guidance, and it is possible to assess conformity in CVP service areas [See EPA's proposed Post-1987 Policy and other Federal Register notices: 52 FR 45055, 24 November 1987; 46 FR 7182, 22 January 1981; 45 FR 21593, 1 April 1980].

   The conformity guidance states that no action that causes or contributes to violations of standards, or which interferes with attaining standards, can be considered in conformity with a SIP. If the proposed project would interfere with attainment of national standards, it would be prohibited by CAA unless the preferred alternative is accompanied by air quality mitigation measures sufficient to offset all adverse impacts.

   a. The revised DEIS should specifically address protection of standards and SIP conformity. It should contain a mitigation program that requires implementation of measures being considered for, or ultimately adopted into, the new SIPs or FIPs. Similar attention should be given to requiring urban contractors to fully implement SIP measures. This should also include contract conditions requiring agricultural districts to ensure implementation of measures to avoid erosion and minimize burning and pesticide application. It should also address monitoring systems and enforcement.

IRON MOUNTAIN MINE SUPERFUND SITE

BOR has provided Shasta Unit water to dilute and minimize adverse impacts of acid mine drainage on fisheries. The need for dilution water, consistent with Shasta Unit authorizations, will persist into the future. EPA's Iron Mountain Mine Superfund effort is authorized to expend funds to achieve water quality improvements in the Sacramento River and to protect fisheries. The Superfund remedial plan presumes that historical and current flows will be available for the cleanup program; however, the proposed water marketing project may alter flows from the Shasta Unit and make it impossible to achieve our water quality objectives. If it is not certain whether we can achieve fisheries protection through water quality improvements commensurate with the success of Superfund cleanup, EPA would have to reconsider the extent to which expenditure of funds would be appropriate.

We are seeking assurance from BOR that the expected success of the Superfund effort will not be negated by the proposed water contracting project. Because BOR and EPA still have key decisions to make with regard to the Superfund cleanup, EPA believes it is premature to commit to new long-term water contracts before our agencies have signed a binding agreement to guarantee the availability of dilution flows during periods critical for fisheries protection.

1. Our comments below regard specific sections of the DEIS for the Sacramento River Service Area (SRSA):

   a. The revised DEIS should clarify that EPA's Record of Decision authorized an Interim Remedial Action consisting of source control and water management components (ROD, dated 3 October 1986). The full benefits of the Superfund cleanup can only be realized following final remediation.

   b. p. 1-20

      - Paragraphs 5 and 6 should refer to EPA's Interim Remedial Action.

      - Paragraph 7 should refer to expected benefits after EPA's final remedial actions.

   c. p. 3D-8, 2nd full paragraph

      - Dates of mining activities are from 1860 to 1962.

      - The levels for copper, cadmium and zinc established by the 1980 Memorandum of Understanding (MOU) have been determined to be inadequate to fully protect Sacramento River's aquatic life (DFG studies done in conjunction with MOU between USBR, RWQCB, and DFG, 1980). Additional dilution would be required to meet the adopted State Basin Plan Standards that specify concentrations 2 to 4 times lower than the 1980 MOU concentrations (1980 MOU; EPA Record of Decision for Iron Mountain Mine).

        If EPA succeeds in significantly reducing metals discharge from IMM, we expect to achieve State Basin Plan Standards in all years, except during a "worst case" scenario when a wet year follows one or more dry years. In this instance, we expect the remediation to achieve EPA criteria described

in Section 4-D. While this would be less protective than the State Standards, it would be a substantial improvement over the 1980 MOU conditions.

d. p. 4D-9, 5th paragraph:

- Delete second sentence; it is incorrect. Our Superfund program has evaluated the high cost of bringing IMM project into full compliance with the Clean Water Act. With respect to fund balancing, we have chosen the described point below Keswick Reservoir for determining the success of Superfund actions. Clean Water Act requirements are otherwise legally in effect and not compromised by decisions of our Superfund program.

e. p. 4D-9, 6th paragraph:

- EPA has selected an interim remedial action program and has begun implementing certain components in a phased approach. EPA is continuing investigative work toward a final remedy. EPA is seeking binding agreements with BOR to assure the preservation of water quality gains secured by successful Superfund cleanup. Further funding decisions will be based upon the assurance that EPA's successful cleanup would result in commensurate water quality improvement and fisheries protection.

f. p. 4D-9, 7th paragraph:

- An open pit mine, seven subsidence areas, and cracked ground areas comprising approximately 2.5 acres above the Richmond mineralized zone are being capped. Construction is expected to be fully completed by August 1989. The caps in the open pit and subsidence areas consist of an inverted filter, fill material, an impermeable layer and/or a membrane and a final soil cover.

g. p. 4D-10, paragraphs:

- "Worst-case year" refers to wet years following one or more drought years when availability of excess water releases from Shasta Lake is limited, and acid mine drainage from IMM is abundant.

- We expect that the Superfund project will yield improved water quality and minimize impacts on all life stages of salmon and steelhead. In addition to minimizing or eliminating fish kills, the remedial program is expected to eliminate the sub-lethal events that occur on a frequent basis and result in reduced productivity of the Sacramento River fishery.

h. p. 4D-11, 1st paragraph:

- EPA selected its remedial action program based upon the assumption that 1978 typified a "worst case" water year. Actual data regarding 1978 flows were used to predict water quality improvements expected from Superfund remedial alternatives.

- EPA recognized that source control components of the interim remedial action program, and ultimately the final remedy, would not by themselves allow for attainment of water quality objectives. To meet State Basin Plan Standards, it is imperative that BOR continues releasing Shasta Unit flows to dilute metal concentrations in Spring Creek drainage waters, thereby minimizing drainage impacts on Sacramento River water quality.

- BOR's modeling analysis relies on perfect hindsight to predict the amount of water potentially available. Comparison of the **No Action Alternative** to actual 1978 flows indicates that large amounts of water will be available in the future during the critical time periods of December, January and February. The DEISs rely on this projected abundance to claim the limited impact of additional water contracting on water quality. However, the model's predictions may not be reliable in assessing the proposed project's impacts on the expected Superfund water quality benefits.

i. p. 4G-8, paragraph 1:

- This paragraph indicates that some alternatives would reduce flows during the wet season; this is a critical time period regarding adverse acid mine drainage affects on fisheries. Moreover, The DEIS incorrectly assumes that EPA's remedy may mitigate the impacts of these reduced flows. On the con-

trary, Superfund source controls and water management components, in combination with current and historic Sacramento River flows, are just sufficient to achieve the project's water quality objectives. The proposed flow reductions would thwart the success of our Superfund efforts.

- In contrast with the statement that modeled flows show no impacts on the success of EPA's remedy (section 4D, page 11), the above section agrees that there will be an impact on at least some Superfund remedial alternatives. If the CVP is operated to capture early season storms intended to maximize storage (to service old contracts now being implemented - plus new proposed contracts), there may not be enough Shasta Unit water available in the future to dilute contaminated Spring Creek water. As a result, fisheries would be adversely impacted.

- If EPA's program results in significant source control and greater operational flexibility, fish kills may be averted. However, EPA's goal is to maintain water quality that not only prevents kills but also prevents sublethal impacts on fisheries. The proposed water contracting program may conflict with achieving this goal.